to this very settlement of the question. But the problem will never be solved if the party of resistance are encouraged by being told that the acquiescence of the country graduates is indispensable, and that a measure brought in by the strongest Administration of the century cannot be passed if a handful of malcontents oppose it."

With such expressions of opinion as these before us we cannot doubt but that London will yet be roused to a sense of what it will lose if advantage is not taken of the present golden opportunity.

HENRY SEEBOHM.

THE death of Henry Seebohm was announced in one of the "leading dailies" last week, as that of a member of an eminent firm of steel-manufacturers. Steel-manufacturer Seebohm was, no doubt, and his steel was good; but his name will be remembered as that of an acute and hard-working naturalist long after the quality of his steel is forgotten.

Henry Seebohm was one of a family of Quakers of Scandinavian origin, as the name shows, but settled for several generations in England. He was born in 1832, at Bradford in Yorkshire, and educated at the Quakers' school in York. His father, who was a practical man and thought everybody should begin at the beginning, started him in life as a grocer's shop-boy, in order that he might be taught to tie up paper-parcels properly. After many vicissitudes in business, Seebohm settled down as a maker of pot-steel at Rotherham, and in due time achieved a handsome competence. From his earliest days devoted to natural history and especially to ornithology, Seebohm spent all his leisure in the study of birds, and made short excursions into different parts of Europe in order to obtain personal acquaintance with some of the rarer species. It was not, however, until about twenty years ago that his business pursuits permitted him to devote much time to scientific work. In 1875, in company with his friend Mr. J. Harvie Brown, he made his first great excursion to the valley of the Lower Petchora in North-east Russia. Of the remarkable ornithological discoveries effected on this occasion an account was first published in *The Ibis* for 1876. But a complete and most attractive narrative of the whole journey was subsequently prepared by Seebohm, and issued in 1880 under the title of "Siberia in Europe." In 1877 a longer and more adventurous journey was carried out into the Far East. On this occasion Seebohm visited the valley of the Yenesay, and in 1882 published his "Siberia in Asia" as a pendant to his former volume.

After this Seebohm commenced to put together the facts that he had accumulated, and the conclusions that he had arrived at on his much-loved subject of British birds. The first volume of his "History of British Birds and their Eggs" was issued in 1882. In 1885 the subject was concluded by the issue of the third and fourth volumes. It may be truly said that no other book of the sort has been prepared on the base of such wide and varied experiences. Having acquired from a brother ornithologist a special collection of wading-birds, Seebohm next turned his attention to this branch of ornithology, which had also particular attractions for him in connection with the migrant habits of this order, and in 1888 issued a beautifully illustrated quarto work "On the Geographical Distribution of Plovers, Sandpipers, and Snipes," which was, in fact, a complete "Monograph" of the birds of the order Limicolæ. He also wrote two treatises on the "Classification of Birds," the last of which was only published in the present year.

Seebohm was a most liberal contributor to the bird-collections of the British Museum, and from time to time made many very handsome contributions to them. He would purchase and present without the slightest hesitation any specimens that came into the market, if he thought there would be a difficulty in their acquirement by the Museum. He gave to the Museum the whole of his unrivalled series of eggs, and had it arranged along with the rest of the collection of these objects under his own personal supervision. He was also the compiler of the fifth volume of the great catalogue of birds published by the Trustees, which was issued in 1881. This related principally to the thrushes—a group with which Seebohm was specially familiar. In fact, he has long had in preparation a complete monograph of this group of birds, with coloured illustrations of every species, but has unfortunately left it unfinished at his decease.

Seebohm was elected a Fellow of the Zoological Society and of the British Ornithologists' Union in 1873, and from that date onwards was a leading spirit in the conduct of both these Societies, and a constant contributor to their publications. He was never elected a Fellow of the Royal Society, though put up as a candidate, and very strongly supported. Unfortunately occult influences interfered with his attainment of this honour. Seebohm, though one of the kindest natures possible, was occasionally a severe critic, and gave offence to sensitive individuals by stating the truth too plainly. The loss of an only son some years ago was a sad blow to Henry Seebohm; but he recovered this shock to a great degree, and returned to his usual pursuits. His last and fatal illness was consequent, as he believed, on an attack of influenza, which took place last spring. He died on the 26th ult., at his residence in South Kensington, where he had got together a splendid ornithological library and an almost unrivalled collection of British birds, leaving a vacuum in the ranks of living naturalists which it will be very difficult to fill.

NOTES.

THE first meeting of the General Committee formed for the purpose of establishing a memorial to the late Prof. Huxley was held on Wednesday, November 27, when it was resolved—"That the memorial do take the form of a statue to be placed in the Museum of Natural History, and a medal in connection with the Royal College of Science; and that the surplus be devoted to the furtherance of biological science, in some manner to be hereafter determined by the Committee, dependent upon the amount collected."

IT will be remembered by our mathematical readers that a Committee, including the names of many eminent mathematicians in both hemispheres, was formed in 1893 to obtain funds for a memorial to the renowned master of geometry—Lobatchefsky. The report of the Committee on what has been done in the matter has just been issued. The total sum received up to May last was 9071 roubles (£1417), and when all expenses had been paid the amount available for the memorial was 8840 roubles (£1381). This sum enables the Committee to carry out the double intention of founding an international prize for geometrical works, especially for those belonging to non-Euclidean geometry, and also to erect a bust of Lobatchefsky. Six thousand roubles have been put by to found the prize, which will consist of 500 roubles (nearly £80), to be given every third year for the best geometrical works or memoirs. The memoirs may be written in Russian, French, German, English, Italian, or Latin, and must be sent to the Physico-Mathematical Society at Kazan, at least a year before the adjudication of the prize. The first prize will be awarded on October 22 (November 3, new style), 1897. The sum remaining over and above that devoted to found the prize will go towards erecting two busts of Lobatchefsky—one outside the University of Kazan, and the other in the interior of the University Buildings. The former bust, with its pedestal, will cost three thousand roubles, of which two thousand will come from the Lobatchefsky fund, and one thousand from the Municipal Council of Kazan. In the case of the second bust, which will be placed in the meeting-room of the University, two hundred roubles will be given from the fund; and the remainder of the cost will be defrayed by the Professors. All memoirs referring to Lobatchefsky and his geometry, together with the printed papers and manuscripts of the great geometer himself, are to be arranged in a separate collection, and named the "Bibliotheça Lobatcheoskiana."

Mr. John D. Rockefeller's recent gift of an additional million dollars (£200,000) to his munificent donations to the University of Chicago, and his promise of a similar contribution of two million dollars, were noted at the beginning of last month. Our readers will be interested to read Mr. Rockefeller's letter to the Trustees of the University, printed in *Science* of November 15:—"October 30, 1895. To the Trustees of the University of Chicago, T. W. Godspeed, D.D., Secretary. Gentlemen: I will contribute to the University of Chicago $1,000,000 for endowment, payable January 1, 1896, in cash, or at my option, in approved interest-bearing securities at their fair market value. I will contribute in addition, $2,000,000 for endowment or otherwise, as I may designate, payable in cash, or, at my option, in approved interest-bearing securities at their fair market value, but only in amounts equal to the contributions of others, in cash or its equivalent not hitherto promised, as the same shall be received by the University. This pledge shall be void as to any portion of the sum herein promised, which shall prove not to be payable on the above terms, on or before January 1, 1900. Yours very truly (signed), John D. Rockefeller." These gifts, remarks our contemporary, make the entire amount of Mr. Rockefeller's donations to the University of Chicago about 7,600,000 dollars, probably the largest gift ever made by an individual for educational or public purposes."

A quarter of a million dollars (£50,000) was, we understand from *Science*, granted by the last U.S. Legislature to the Regents of the University of California for the erection of a suitable building for the departments situated in San Francisco, the Colleges of Law, Medicine, Dentistry, Pharmacy, and Veterinary Surgery. Mr. Adolph Sutro, Mayor of San Francisco, has given a tract of thirteen acres as a site for the building. On the adjoining thirteen acres Mr. Sutro proposes to erect a building for his magnificent library of about two hundred and fifty thousand volumes.

It is announced that at the instance of the Bureau des Longitudes, the French Minister of Marine has provided ships, men, and instruments for some seven expeditions, which are to make accurate (and as far as possible simultaneous) observations in different parts of the globe. One of the chief defects of the present state of knowledge of this important branch of terrestrial physics arises from the fact that past observations have been made in various ways, under very various conditions, and that a great part of it depends upon the scarcely scientific records of ordinary seamen. The French expeditions are to observe strict uniformity in their method of observation, and cannot fail to enhance the value of the work which England and America have begun in this direction.

At the recent annual meeting of the Royal Society of Edinburgh, the following officers and members of Council were elected for the ensuing session:—President: The Right Hon. Lord Kelvin, F.R.S. Vice-Presidents: Prof. Copeland, Prof. James Geikie, F.R.S., the Hon. Lord Maclaren, the Rev. Prof. Flint, Prof. J. G. McKendrick, F.R.S., and Prof. Chrystal. General Secretary: Prof. P. G. Tait. Secretaries to Ordinary Meetings: Prof. Crum Brown, F.R.S., and Dr. John Murray. Treasurer: Mr. Philip R. D. Maclagan. Curator of Library and Museum: Dr. Alexander Buchan. Councillors: Dr. Alexander Bruce, Prof. Frederick O. Bower, F.R.S., Mr. A. Beatson Bell, Sir Arthur Mitchell, K.C.B., Prof. T. R. Fraser, Mr. Robert Munro, Dr. M. D. Noel Paton, Mr. C. G. Knatt, Sir W. Turner, F.R.S., Sir Stair Agnew, K.C.B., James Burgess, and Dr. John S. Mackay.

As one of the results of the late Medical Congress, the *Pharmaceutical Journal* states that the Government of India have decided to institute an inquiry into the subject of the desirability of a more extended use of indigenous drugs. The Committee to which the Indian Government has decided to refer the whole question consists of Dr. George Watt, C.I.E., Surgeon Lieut.-Colonel C. J. H. Warden; and Brigade-Surgeon Lieut.-Colonel George King, F.R.S., C.I.E., Surgeon Lieut.-Colonel J. F. P. McConnell, and Rai Bahadur Kanny Loll Dey, C.I.E. The points to which the Government of India has particularly invited the attention of the Committee, with a view to their careful consideration, are the practicability as well as the utility of (*a*) encouraging the systematic cultivation of medicinal plants indigenous to India; (*b*) encouraging the increased use in medical depôts of drugs of known therapeutic value; and (*c*) sanctioning the manufacture of stable preparations of certain drugs at the depôts. With regard to these points, the Government of India desires that the members of the Committee shall consider, and report their opinion, as to the action which would be best calculated to give the suggested encouragement. The Committee will further consider, from a practical point of view, the question of initiating, as a Government measure, experiments to test the reputed therapeutic value of indigenous drugs.

The next session of Parliament will, the *British Medical Journal* remarks, have before it a scheme for providing a supply of sea water for London and certain places on the route. The intention is to take in the water from the sea opposite Lancing, in Sussex, where all the pumping machinery will be situated. It will be pumped thence to a large reservoir in an elevated position at Steyning, whence it will flow by gravitation to another reservoir at Epsom. From this reservoir it will be distributed over London, the parts to be first supplied being the West-end and central portions. It is stated that local authorities will be supplied with sea water for flushing sewers, watering streets, and other public uses, such as swimming baths, and that sea water baths will be supplied to hotels, hospitals, schools, &c. As to any relief to present sources of water supply by using sea water for public purposes, it should be mentioned that the quantity proposed to be provided is stated to be only 10,000,000 gallons per day, while the average daily supply of water to London amounted in 1893 to over 190,000,000 gallons. If the scheme is carried into effect, it will have an important bearing upon the health of London.

On Friday last, the new Museum of Natural History which has been erected at Perth by the Perthshire Society of Natural Science, at a cost of about £4000, was formally declared open by Sir William Flower, in the presence of a large and representative gathering. Mr. Henry Coates, the President of the Society, occupied the chair, and, in introducing Sir William Flower, he remarked that the idea of forming a Museum had been kept before their Society from its commencement, twenty-eight years ago. The first attempt to form a collection dated from 1869. In 1877 the late Sir Thomas Moncreiffe brought forward a comprehensive scheme, which ultimately resulted in the erection of the Moncreiffe Memorial Museum. The available space was rapidly filled up, and in 1885 Dr. Buchanan White suggested a scheme for the enlargement of the premises. The scheme was embarked upon in 1892, and by the generous support of friends, and in particular the donation of Sir Robert Pullar, it had now reached its present successful completion. Sir William Flower, in declaring the Museum open, said he thought that this epoch in the history of the institution might mark a distinct advance in the educational history of the country. The foundation of such societies as the Perthshire Natural Science Society in all the principal centres of population was a proof that they fulfilled a natural want in the human mind in its present stage of development. Of the general value of museums, using the word in its widest sense, as collections of works of art and of nature, in the intellectual advance of mankind, there could be no question. How could science be studied without ready access to the materials upon which knowledge is built up? In many branches of science, especially those commonly called natural history, the progress was mainly commensurate with the abundance and accessibility of such materials. All would recognise the gradual development of the conception that the museum of the future was to have for its complete ideal not only the simple preservation of the objects contained in it, but also their arrangement in such a manner as to provide for the instruction of those who visited it. The value of a museum would be tested not only by its contents, but by the treatment of those contents as a means of advancing knowledge. What a museum really depended upon for its success and usefulness was not its building, not its cases, not even its specimens, but its curator. They might as well build a church and expect it to perform the duties required of it without a minister, or a school without a schoolmaster, or a garden without a gardener, as to build a museum and not provide a competent staff to take care of it. Complimenting the directors on the objects they had sought after in the arrangement of their museum, which was to provide a good local collection of natural products, as well as the formation of a type collection, Sir William Flower said every specimen should have its definite purpose, and he quoted the saying of Dr. Brown Goode that an efficient museum might be described as a collection of instructive labels, each illustrated by a well-selected specimen. Advocating the appointment of a paid curator, he said the great principle of expending public money upon purposes of education, though a comparatively new one, was now conceded upon all sides. The cost of supporting a few really efficient museums would be a mere trifle compared with the hundreds of thousands spent upon far less efficient modes of educating and elevating the people. He commended to the consideration of those who controlled the pecuniary funds of the city the great benefits they might confer on education by assisting to guarantee the stability of the Institution, which noble voluntary efforts had brought into the condition which enabled him to declare it open.

THE Gesellschaft für Erdkunde of Berlin has elected Mr. Scott Keltie, Dr. H. R. Mill, and Mr. E. G. Ravenstein, Corresponding Members, as a recognition of their work at the late International Geographical Congress.

THE Paris Academy of Sciences have elected M. Lannelongue Member of the Section of Medicine and Surgery, in the place of the late Prof. Verneuil. M. Charles Monod has been elected to succeed Prof. Verneuil as a Member of the Paris Academy of Medicine.

DR. G. LAGERHEIM (Trömso) has been appointed Professor of Botany and Director of the Botanical Institute to the University of Stockholm.

THE second series of lectures arranged by the Sunday Lecture Society begins on Sunday afternoon, December 8, in St. George's Hall, Langham Place, at 4 p.m., with a lecture by Sir Benjamin Ward Richardson, F.R.S. Lectures will subsequently be given by Mr. J. Churton Collins, Prof. Arthur Smithells, Prof. Vivian Lewes, Prof. Percy Frankland, F.R.S., Dr. Karl Leutzner, and Dr. Andrew Wilson.

A CORRESPONDENT in the United States writes:—"At the elections this month several very important matters not of a political nature were decided. In the State of New York, the measure to expend $9,000,000 on the State canals was approved by a large majority. The Erie Canal will be made nine feet deep, and somewhat widened, and improved locks will be built. Similar improvements will be made on the Oswego and Champlain Canals. The work will be pushed on rapidly, and facilities provided for the use of electric-motive power, to be furnished by the Falls of Niagara."

IN June 1894, Dr. A. Donaldson Smith, a young American physician, left England for an expedition across Somaliland to Lake Rudolf. He was accompanied by Mr. Gillett, who was recalled to England a few months later, and by Mr. Dodson, who acted as collector and taxidermist. The attempt to march straight from Milmill to Lake Abbai was frustrated by the Abyssinians, and Dr. Smith returned to the Webi Shebeyli. He left there in February last in order to try to reach Lake Rudolf by another route, and as he was not heard of till he arrived at Lamir in November, some anxiety was felt as to his safety. He has, however, brilliantly carried out the whole of his plans, and achieved the march from the coast of Somaliland to that of British East Africa, which has been attempted repeatedly since it was first projected by Burton. Dr. Smith has explored the country to the north of Lakes Rudolf and Stephani and Abbai, connecting the route of Teleki with that of the Abyssinian travellers. He also reports (*Times*, 2nd inst.) a race of dwarfs in this region. These must be the Doko, first reported by Harris in 1844 from information supplied by a native of Shoa, and whose existence has been repeatedly reaffirmed. Lake Rudolf has only previously been reached by Teleki and Höhnet; at the time of their visit the lake was brackish, but it is now fresh. Dr. Smith has brought back large collections, including fish from Rudolf, Stephani, and Abbai. He does not seem to have seen the snow-clad Wosho, reported by Abbadie; Mount Wosho will probably therefore have to be wiped off the map. Dr. Smith is expected to read his paper at the Geographical Society in January, when important additions to our knowledge of this part of Africa may be expected.

FURTHER interesting additions to our knowledge of the African fish-fauna may be hoped from the collection of Miss Kingsley, who returned on Saturday, 30th ult., from a courageous journey on the West Coast. Miss Kingsley ascended the Ogowe River to the French station at Njole, and thence journeyed northward to the Rembwe, a tributary of the Gaboon. She visited the Crystal Mountains. Subsequently she ascended the Cameroons, and climbed the highest peak, the summit of which was first reached by Burton and Mann in 1862. Miss Kingsley's field of exploration is sufficiently well known to preclude important geographical results, but many valuable ethnographical observations have been made and zoological specimens collected.

A CURIOUS method or silvering mirrors has recently been patented by M. Hans Boas, of Kiel (says *Engineering*). It is based upon the fact that, when one of the heavy metals forms the cathode of a vacuum tube, containing a trace of hydrogen, the metal is volatilised by the current, and is deposited as a firmly adherent and highly polished layer on the walls of the tube. The mirror thus produced is said to be of much greater brilliancy than can be obtained by ordinary methods.

THE *Times of Ceylon* learns that it is in contemplation to introduce the electric light into the Sivan Hindu Temple at Kochicadde, on the main road to Mutwal, Ceylon. The premises of this Hindu place of worship are at present lighted by gas, and the trustees propose to substitute the electric light for gas; but whether they will introduce it into the interior of the building, is a matter which is now under their consideration. It is said that, if the Sivan Hindu Temple introduce the innovation, the trustees of equally wealthy temples are sure to follow the example set by their brethren.

IN reference to his letter on the "Jelly-fish of Lake Urumiah" (NATURE, 1892, p. 294), Mr. Sclater informs us that he has lately received a letter from Mr. F. F. Irving, of the English Mission at Urmi, in Persia, stating that Mr. Irving has lately visited the lake, and has found, as has been described by Mr. Curzon, numerous specimens of the supposed jelly-fish in its waters. Mr. Irving says that it resembles a tiny shrimp when swimming, but that as soon as it is brought out it succumbs into a sort of gelatine mass without shape. Measures are being taken to secure the transmission home of specimens of this interesting organism.

AN instance of concerted harmony and measured time-keeping on the part of certain insects, described by Dr. G. M. Gould, of North Carolina, in a recent number of *Science*, has drawn several letters from entomologists on the subject. Probably most people would hardly recognise music in the stridulous noise made by members of the group Crytophyllus, or "Katydids," and would express surprise at the suggestion that there is any rhythm or unison in the sound. Dr. Gould, however, states that there is no doubt whatever that katydids keep time in their stridulations. So soon as the sun has set in North Carolina an orchestra of katydids begins to tune up. After a few preliminary raspings, the members of the orchestra begin to make their noises together; another orchestra at once answers them, and so they go on swing-swong, one set answering the other the whole night long. Mr. A. P. Bostwick adds his testimony to that of Dr. Gould as to the antiphonal rhythm of two orchestras of katydids. He has remarked that the antiphony is often very regular for several minutes, sometimes stopping short, and again becoming broken into irregular individual stridulation at the end. The exact unison of movement can hardly be purely mechanical, for the katydids often start their noises all at once. A difference of pitch between the notes of two orchestras was suspected by Dr. Gould; but Mr. Scudder, who has given much attention to the sounds made by locustarians, thinks this may have been only apparent, and due to difference in distance from the observer.

THAT real images of objects are formed upon the human retina seems to be supported by a series of experiments carried out by Mr. W. Ingles Rogers, and described by him in the *Amateur Photographer* for November 22. Mr. Rogers took a shilling and looked at it intently in ordinary daylight for a full minute, with the idea of fixing the image of it distinctly upon the retina. He then drew a yellow screen over the window of the room in which he sat, so as to exclude all actinic light, and, placing a photographic plate in a certain position, fixed his eyes upon the centre of the plate, at the same time allowing nothing but the image of the shilling to occupy his mind. He remained looking at the plate for forty-three minutes, and afterwards developed it, with the result that an outline of the coin was clearly shown upon it. The "psychogram," as the resulting picture is called, was sufficient to show that better results might confidently be expected. Accordingly, Mr. Rogers continued his experiments, and, in order that there should be no doubt about the *bonâ-fide* nature of the result, he produced a psychogram in the presence of three trustworthy witnesses, whose testimonies as to the genuineness of the photographs accompany Mr. Rogers's communication. On this occasion a postage-stamp was used instead of the coin. The stamp was looked at in a strong light for one minute. It was then removed, a plate was put in its place, and the plate was looked at for twenty minutes. The resulting psychogram is reproduced in our contemporary, and although there is an absence of detail, sufficient is seen to prove beyond doubt that a picture of an object, impressed upon the retina, can send out vibrations which will result in the production of an image upon a sensitive plate. The result is of such great interest not only to photographers, but to students of physiological optics, that we hope the experiments will be continued.

AT a recent meeting of the Paris Academy of Sciences, M. Mascart presented an interesting note on the rainfall at Athens, by M. D. Eginitis, based on observations made at the Observatory during 1878–94. The average yearly rainfall for this period was 16 inches, and the number of wet days 97·8. This amount is not very small; the reputed dryness of Athens is due to three other causes: (1) the considerable variation in the annual fall; thus in 1883 it amounted to 33·3 inches, while in 1891 it was only 8·1 inches, or half the normal value. The dry and wet years follow with some regularity; a very wet period occurs generally about every seventh year. (2) The annual range of the rainfall, which presents great irregularity. The wettest month, November, has an average fall of 3·1 inches; and the dryest, July, only 0·3 inch. From June to July the rainfall is very insignificant; at times there is none for three months. (3) The intensity; the falls being heavy, but of short duration. It rarely rains for a whole day, generally speaking, after a few hours of rainy weather the sky becomes quite clear. From observations taken at 8 a.m., 2 and 9 p.m., it is found that the amount of rainfall during the day is double what it is during the night; the maximum occurs during the afternoon, owing to the greater frequency of thunderstorms at that time. The great variation in the yearly rainfall is said to be due to the different amount of humidity brought by the equatorial air-current, according to the course it has taken in arriving at Athens.

A VALUABLE catalogue (No. 155) of choice and rare books, including selections from the libraries of the late Dr. Reginald S. Poole, and Prof. de Lacouperie, has been compiled and issued by Mr. Bernard Quaritch, 15 Piccadilly.

AT the recent meeting of the National Academy of Sciences' held at Philadelphia, the following papers were presented:—"On the Palæozoic Reptilian Order of the Cotylosauria," by Prof. E. D. Cope; "On a New Variable of Peculiar Character," by Dr. S. C. Chandler (see "Our Astronomical Column," p. 109); "On a Bone Cave at Port Kennedy, Pa," by Prof. E. D. Cope; "On Borings through the Coral Reef in Florida," by Prof. A. Agassiz; "On the Alkali Uranates," by Prof. Wolcott Gibbs; "The Olindiadæ" and "New Campanulurian Medusæ," by Prof. W. K. Brooks; "The Filar Anemometer" and "The Counter-twisted Curl Aneroid," by Prof. Carl Barus; "On the Broadening of Spectral Lines by Temperature and Pressure," by Prof. A. A. Michelson; "On the Asteroids," by Prof. A. Hall; and "The Early Segregation of Fresh-water Types," by Dr. Theo. Gill.

THE fourth volume of *Transactions* of the Rochdale Literary and Scientific Society, covering the period 1893–1895, has reached us. Included in it are papers on "The Birds in Piethorn Valley," by Mr. W. Watts; "The Rainfall in Rochdale and the Neighbourhood," by Mr. J. R. Ashworth; "The Cold Weather at Facit, during the Winter of 1894-95," with instructive diagrams, by Mr. T. S. Smithson; and Recent Discoveries in the Manufacture of Indigo," by

Mr. W. H. Pennington. The volume represents a large amount of industry and research on the part of associates of the Society, and it will give a stimulus to the study of science in Lancashire. Another volume just published by a provincial Society is the Annual Report and *Transactions* (vol. xxix.) of the Naturalists' Field Club and Archæological Society of North Staffordshire. This volume is, as a whole, more scientific in character than that of the Rochdale Society. Reports are given of the work of the various sections of the Society concerned with observations in different branches of science, and we notice, among the other contents, an address by Dr. W. Hind; a paper on glacial theories, past and present, and their application to Staffordshire, by Mr. C. E. De Rance, and one on the occurrence of marine fossils in the coal-measures of North Staffordshire, by Mr. John Ward. Both volumes are very creditable records of the work of provincial scientific Societies.

We have on our table several new editions of books previously reviewed in Nature. Among these volumes is a second edition of "Modern Microscopy" (Baillière, Tindall, and Cox), a handbook for beginners, comprising a section on the microscope, and instructions for its use, by Mr. M. I. Cross; and on the preparation and mounting of microscopic objects, by Mr. Martin J. Cole. We welcome a second edition of "A Manual of Physics" by Dr. W. Peddie, bearing the same publishers' names. The work is an admirable text-book, which students of physics would do well to obtain. Messrs. Longmans, Green, and Co. have published an eighth edition of Mr. John Thornton's "Elementary Physiography"; and Messrs Blackie and Son, the ninth edition of "Earth-Knowledge," by Mr. W. Jerome Harrison and H. Rowland Wakefield; both these books being intended for students in the physiography classes of the Department of Science and Art. Messrs. Blackie have issued also a fourth revised and enlarged edition of "Elementary Inorganic Chemistry," by Prof. A. Humboldt Sexton.

The additions to the Zoological Society's Gardens during the past week include a White-backed Piping Crow (*Gymnorhina leuconota*) from Australia, presented by Mr. Percy A. Gore; a White-headed Sea-Eagle (*Haliætus leucocephalus*) from Newfoundland, presented by Mr. Leicester Curzon Howe; a Chough (*Pyrhocorax graculus*), British, presented by Mr. Gerald Strickland: two Blood-breasted Pigeons (*Phlogænas cruentata*) from the Philippine Islands, presented by Captain Harvey; two Greater Sulphur-crested Cockatoos (*Cacatua galerita*), a Crimson-winged Parrakeet (*Aprosmictus erythropterus*) from Australia, presented by Mrs. Morgan; two Barbary Wild Sheep (*Ovis tragelaphus*, ♂ ♂) from North Africa, deposited; a Great Northern Diver (*Colymbus glacialis*), twelve Snow Buntings (*Plectrophanes nivalis*), four Dunlins (*Tringa alpina*), a Golden Plover *Charadrius pluvialis*), a Grey Plover (*Squatareola helvetica*), British, a Bahama Duck (*Dafila bahamensis*) from South America, four Green-winged Doves (*Chalcophaps indica*) from India, two Bearded Vultures (*Gypætus barbatus*), European, purchased.

OUR ASTRONOMICAL COLUMN.

Positions of the New Comets.—As we go to press, the following calculated positions for the two new comets have been received from Kiel. The places are for Berlin midnight.

Perrine's Comet.

Date.	R.A. h. m. s.	Decl. ° ′
Dec. 7	14 52 37	−13 37·2

Brooks's Comet.

Date.	R.A. h. m. s.	Decl. ° ′
Dec 8	8 11 2	+44 28·2
10	7 45 57	+51 36·7
12	7 16 42	+57 23·5

Swift's Comet, 1895 II.—Another comet has put in a claim to be considered the long-lost comet of Lexell; and the claim is perhaps based on a better foundation than any of the other competitors can show. Le Verrier has supported the comets of Faye and De Vico; more recently Brooks' comet of 1889 found a supporter in Dr. Chandler, but the claim was routed by the calculations of Mr. Lane Poor. M. Schulhof looked favourably for a while on the merits of Finlay, but finally inclined to the belief that the two comets had a common origin rather than absolute identity. The new comet Swift has much to recommend it to the consideration of astronomers (*Astr. Nach.*, No. 3318). In the first place, Tisserand's criterion is fairly well satisfied; next, the closest approach to the orbit of Jupiter, in the case of both comets, falls very nearly in the same longitude; further, of the various orbits along which Le Verrier showed Lexell might move, after the heavy perturbations of 1779, one can be selected which agrees very closely with the orbit of Swift. Moreover, this particular selection of the various orbits suggested by Le Verrier is supported by Clausens's work on the same comet. Here is the comparison :—

	Selected orbit of Lexell.	Orbit of Swift (Schulhof).
Long. of perihelion	330°·0	338°·1
Long. of node	169°·9	170°·3
Inclination	6°·0	3°·0
Excentricity	0·6317	0·6515
Semi-axis major	4·224	3·724
"Tisserand's criterion"	0·480	0·493
Long. of approach to ♃	184°	179°·5

It is a question if the agreement is not too good, for the comet of Swift made a close approach to Jupiter in 1886, and underwent heavy perturbations. M. Schulhof is at present considering these; but till their character and amount is known, it is premature to decide this vexed question of identity. It is possible the question will not be set at rest till 1931, for the returns previous to that date are not very favourable for observation, and the comet may pass unnoticed. But in any case observations in large telescopes should be prosecuted as long as possible, in order to determine the mean motion with accuracy, with the view of assisting the re-discovery.

A Peculiar Variable Star.—A variable star recently discovered by Mr. Chandler presents some very remarkable features (*Astronomical Journal*, No. 358). In the singularly short period of 5h. 31·15m., the magnitude of the star varies between 8·9 and 9·7, so that three or four of the principal phases may be observed in a single night. The variations are distinctly not of the Algol type, but maxima and minima are equally and sharply marked. The light-curve is also unlike those of the other class of short-period variables, such as δ Cephei and η Aquilæ, inasmuch as the rise to maximum and fall to minimum take place in equal periods.

The newly-discovered variable is designated U Pegasi, and its position for 1900 is R.A. 23h. 52m. 53s., Decl. 15° 23′·9; the elements of the variability are as follows :—

	G.M.T. d. h. m.	
Minimum, 1894 Sept.	22 14 56·0	+5h. 31m. 9·0s. E.
Maximum	22 17 41·6	

The probable error of the period is believed to be only a moderate fraction of a second.

It appears that Dr. Chandler discovered the variability of the star more than a year ago, but erroneously inferred that it was of the Algol type with a period of 2·06 days. Mr. Yendell confirmed the variability, and concluded that the period was 0·69d., or one-third of that assigned by Dr. Chandler; but it was still supposed to be of the Algol type. A more recent discussion of the observations, however, has established that this period must again be divided by three, and that the light-curve has the character to which reference is made above.

Saturn's Rings.—Some remarkable observations of the rings of Saturn are reported by A. Mascari, of the Catania Observatory (*Ast. Nach.*, 3318). Observing from July 25 to August 6 of the present year, he noticed certain dark spots on the crape ring, as well as bright ones on the brighter rings. Perhaps the most curious feature of these spots is their apparent permanence of form; for this is not easy to explain if the idea that the rings are composed of separate particles be accepted, as in that case